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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,676	11/12/2003	Ofir Zohar	ASSIA 20.741	8317
26304	7590	01/09/2008		
KATTEN MUCHIN ROSENMAN LLP			EXAMINER	
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NEW YORK, NY 10022-2585				
			ART UNIT	PAPER NUMBER
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			01/09/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

AK

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/706,676	ZOHAR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Michael B. McFadden	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All. b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Request for Continued Examination**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 December 2007 has been entered.

### **Status of Claims**

2. Claims 1-30 are pending in the Application.

### **Response to Amendment**

3. Applicant's arguments filed on 18 December 2007 have been fully considered but they are not persuasive.

### **Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al. ((US Patent No. 6,055,605) herein after Sharma).
6. **Regarding Claims 1, 2, 3, 10, 11 and 12**, Sharma discloses a storage system, comprising: a data storage logical unit (LUs) **(Sharma: Figure 3, Element 150)** comprising respective physical media, the one or more LUs being adapted to receive commands and responsive to the commands to store and recall data; and a plurality of ports, each port being adapted to maintain a plurality of LU command queues **(Sharma: Figure 3, Elements 312/322, 314/324, 316/326, and 318/328)** each of the plurality of LU command queues corresponding to the LUs, such that upon receiving a command directed to one of the LUs, the port places the received command in the respective LU command queue, converts the received command to one or more converted commands at least some of which are directed to the physical media of the one of the LUs, and conveys the at least some converted commands to the physical media in an order determined by the respective LU command queue. **(Sharma: Column 8, Lines 16-20.)**  
**Sharma must inherently convert the commands in some fashion. Commands stored in a command queue must be converted at the very least at the control line. The opcode will be converted into bits that will be used to perform the requested command.**
7. Sharma fails to disclose a plurality of data storage logical units comprising a plurality of physical media and each port having multiple command queues

corresponding to a respective one of the LUs. **However, Sharma shows a logical unit with each port having a command queue that corresponds to that logical unit. Duplicating the logical unit and media that comprises the unit would require duplication of the command queue for the duplicated logical unit providing mere duplication of the logical unit and command queue parts of Sharma. Therefore, a plurality of data storage logical units and each port having multiple command queues corresponding to a respective one of the LUs is a mere duplication of parts and holds no patentable significance. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).**

8. **Regarding Claims 5 and 14**, Sharma discloses the storage system according to claim 1, wherein each of the ports comprises a respective central processing unit (CPU) which operates each of the ports substantially independently. **(Sharma: Figure 3, Elements 202, 204, 206, and 208. and Column 8, Lines 12-16.)**

9. **Regarding Claims 6 and 15**, Sharma discloses the storage system according to claim 1, wherein the command is comprised in one of one or more strings of commands, each command of each string being directed via one of the ports to a respective one of the LUs **(Sharma: Column 8, Lines 16-20)**, and comprising a coupling **(Sharma: Figure 3, Element 300)** which: receives the commands comprised in the one or more strings, sorts the commands according to the ports via which the commands are directed, and conveys the commands to the ports to which the commands are directed. **(Sharma: Column 8, Lines 12-28.)**

10. **Regarding Claims 7, 8, 16 and 17**, Sharma discloses the storage system according to claim 1, wherein the received command comprises a write command to store a data string from a host to the plurality of the physical media, wherein the one or more converted commands comprise instructions to the host to convey the data string to the physical media via the port, and wherein the port is adapted to convey the instructions to the host and wherein the received command comprises a read command from a host to read a data string from the plurality of the physical media, and wherein the one or more converted commands comprise instructions to convey the data string via the port to the host. **(Sharma: Column 8, Lines 12-28.)**

11. **Regarding Claims 9 and 18**, Sharma discloses the storage system according to claim 1, wherein the plurality of the physical media comprise the data, and wherein the port is adapted to track changes of location of the data within the plurality of the physical media. **(Figure 3, Element 180. In order to maintain coherency the system must also be keeping track of where the data is located.)**

12. **Regarding Claim 19**, Sharma discloses wherein each port uses at least one table to convert logical data in the received command to data suitable for the respective physical media to which the command is directed. **It would be apparent to one of ordinary skill in the art that in converting opcode instructions to the proper control line output a conversion table is used.**

13. **Regarding Claim 20**, Sharma discloses wherein each port uses one or more functions to convert logical data in the received command to the data suitable for the respective physical media. **It would be apparent to one of ordinary skill in the art**

**that in order to convert the opcode instructions logic functions must be present in the circuitry.**

14. **Regarding Claims 4 and 13**, Sharma fails to disclose the storage system according to claim 1, wherein the command comprises a request according to a small computer system interface (SCSI) protocol, and wherein the storage system is operative according to the SCSI protocol. **However, the Office takes Official Notice that it would have been obvious for one of ordinary skill in the art. The motivation for doing so would have been that the technology is well known in the art and therefore be efficient and time saving to implement.**

15. **Regarding Claims 21 and 22**, Sharma fails to disclose wherein at least one of the converted commands directed to the physical media is first sent to a fast access time memory acting as buffer, said fast access time memory being adapted to redirect the converted command to the respective physical media. **However, the Office takes Official Notice that it would have been obvious for one of ordinary skill in the art. The motivation for doing so would have been that the technology is well known in the art and therefore be efficient and time saving to implement.**

16. **Regarding Claims 23 and 24**, Sharma fails to disclose wherein the physical media which comprise the plurality of data storage logical units (LUs) are slow access time non-volatile physical media. **However, the Office takes Official Notice that it would have been obvious for one of ordinary skill in the art. The motivation for doing so would have been that the technology is well known in the art and therefore be efficient and time saving to implement.**

17. **Regarding Claims 25 and 26**, Sharma discloses wherein a particular physical media which comprise each of the plurality of data storage logical units (LUs) changes over time. **However, the Office takes Official Notice that it would have been obvious for one of ordinary skill in the art. The motivation for doing so would have been that the technology is well known in the art and therefore be efficient and time saving to implement.**

18. **Regarding Claims 27 and 28**, Sharma fails to disclose wherein each data storage logical unit (LU) is distributed across a plural subset of the plurality of the physical media. **However, the Office takes Official Notice that it would have been obvious for one of ordinary skill in the art. The motivation for doing so would have been that the technology is well known in the art and therefore be efficient and time saving to implement.**

19. **Regarding Claims 29 and 30**, Sharma fails to disclose wherein the port converting the received command to the one or more converted commands includes converting a logical block address and a length of a data string included in the received command; and wherein the converting operation performed by the port also determines if the command is one of a read command and a write command. **However, the Office takes Official Notice that it would have been obvious for one of ordinary skill in the art. The motivation for doing so would have been that the technology is well known in the art and therefore be efficient and time saving to implement.**

**Response to Arguments**



20. Applicant's arguments filed on 18 December 2007 have been fully considered but they are not persuasive.

21. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

22. **Regarding Claims 4, 13, 21-26**, the Applicant has failed to adequately traverse the Office's assertion of Official Notice. To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. Therefore, the well-known in the art statement is taken to be admitted prior art.

23. Regarding all other Claims not specifically traversed above and whose rejections were upheld, the Applicant contends that the listed claims are allowable by virtue of their dependence on other allowable claims. As this dependence is the sole rationale put forth for the allowability of said dependent claims, the Applicant is directed to the Examiner's remarks above. Additionally, any other arguments the Applicant made that were not specifically addressed in this Office Action appeared to directly rely on an argument presented elsewhere in the Applicant's response that was traversed, rendered moot or found persuasive above.


**Conclusion**

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. McFadden whose telephone number is (571)272-8013. The examiner can normally be reached on Monday-Friday 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Sough can be reached on (571)272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBM  
01/06/2008

  
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SUPERVISORY PATENT EXAMINER  
01/06/08